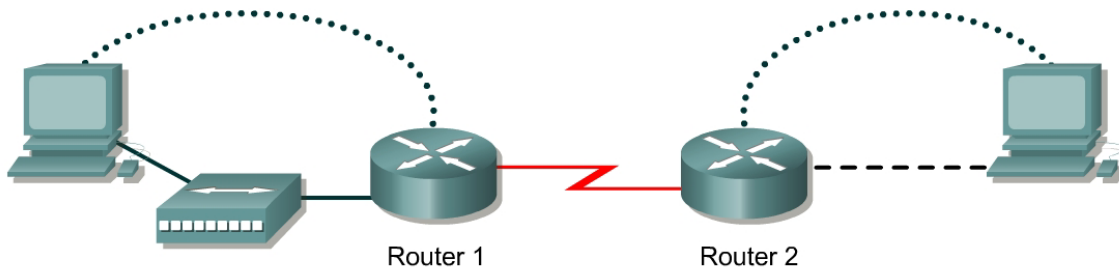


Lab 9.3.7 Troubleshooting Routing Issues with debug – Instructor Version 2500



Router Designation	Router Name	Fast Ethernet 0 Address	Interface type	Serial 0 Address	Subnet mask for both interfaces	Enable secret password	Enable, VTY and console password
Router 1	GAD	192.168.1.1	DCE	192.168.2.1	255.255.255.0	class	cisco
Router 2	BHM	192.168.3.1	DTE	192.168.2.2	255.255.255.0	class	cisco

Straight-through cable	—————
Serial cable	————— ⚡
Console (Rollover)
Crossover cable	- - - - -

Objective

- Utilize a systematic OSI troubleshooting process to diagnose routing problems.
- Use various show commands to gather information.
- Use `debug` commands and logging.

Background/Preparation

Cable a network similar to the one in the diagram. Any router that meets the interface requirements displayed on the above diagram, such as 800, 1600, 1700, 2500, 2600 routers, or a combination, may be used. Please refer to the chart at the end of the lab to correctly identify the interface identifiers to be used based on the equipment in the lab. The configuration output used in this lab is produced from 1721 series routers. Any other router used may produce a slightly different output. The following steps are intended to be executed on each router unless specifically instructed otherwise.

Start a HyperTerminal session as performed in the Establishing a HyperTerminal session lab.

Note: Go to the erase and reload instructions at the end of this lab. Perform those steps on all routers in this lab assignment before continuing.

Step 1 Configure the hostname, passwords and interfaces on the GAD router

- a. On the GAD router, enter the global configuration mode and configure the hostname as shown in the chart. Then configure the console, virtual terminal, and enable passwords. If there is a problem doing this, refer to the Configuring Router Passwords lab. Configure interfaces as shown in the table.

Step 2 Configure the routing protocol on the GAD router

- a. Go to the proper command mode and enter the following:

```
GAD(config)#router rip
GAD(config-router)#network 192.168.1.0
GAD(config-router)#network 192.168.2.0
GAD(config-router)#version 2
GAD(config-router)#exit
GAD(config)#exit
```

Step 3 Save the GAD router configuration

```
GAD#copy running-config startup-config
Destination filename [startup-config]? [Enter]
```

Step 4 Configure the hostname, passwords and interfaces on the BHM router

- a. On the BHM router, enter the global configuration mode and configure the hostname as shown in the chart. Then configure the console, virtual terminal and enable passwords. Configure interfaces as shown in the table.

Step 5 Configure the routing protocol on the BHM router

- a. Go to the proper command mode and enter the following:

```
BHM(config)#router rip
BHM(config-router)#network 192.168.2.0
BHM(config-router)#network 192.168.3.0
BHM(config-router)#version 1
BHM(config-router)#exit
BHM(config)#exit
```

Step 6 Save the BHM router configuration

```
BHM#copy running-config startup-config
Destination filename [startup-config]? [Enter]
```

Step 7 Gather Facts by asking and listening

- a. After asking around, it was found that a network associate on the night shift changed some of the routing parameters on the routers for a circuit between the GAD office and the BHM office. Unfortunately, proper procedure was not followed and no documentation was created on these changes.

Step 8 Gather facts (test basic functionality)

Verify that the internetwork is not functioning by pinging the LAN interfaces.

- From GAD, is it possible to ping the BHM router ~~Fast~~Ethernet interface? No
- From BHM, is it possible to ping the GAD router ~~Fast~~Ethernet interface? No

Step 9 Gather Facts by starting testing to isolate the problem

- This confirmed that there is no reachability between GAD and BHM. Even though it is suspected that there is a routing issue, the temptation to go right to testing routing is resisted. Instead good scientific troubleshooting method is followed.
- First start at the Physical layer, and confirm the WAN link circuit is up. From the GAD router, issue the `show interfaces serial 0` command to confirm that the line and protocol is up.

- Are they both up? Yes

```
GAD#show interfaces serial 0
Serial0 is up, line protocol is up
<output omitted>
```

- Now that it is known that the line and protocol are both up, test the Data Link layer. From the GAD router, issue the `show CDP neighbors` command to confirm that the BHM router is a neighbor to the GAD router serial 0 interface.

- Is BHM shown as a neighbor on interface serial 0? Yes

```
GAD#show cdp neighbors
Capability Codes: R - Router, T - Trans Bridge, B - Source Route Bridge
                  S - Switch, H - Host, I - IGMP, r - Repeater
```

Device ID	Local Intrfce	Holdtme	Capability	Platform	Port ID
BHM	Ser 0	151	R	2500	Ser 0

Step 10 Examine the routing table

- It looks like the data link layer is good. Time to move up and examine the network layer. Check the GAD routing table to see if there is a route to the BHM LAN. To do this, issue the `show ip route` command on the GAD router.

- Is the route there? No

- Are there any RIP routes? No

```
GAD#show ip route
<output omitted>
```

```
Gateway of last resort is not set
```

```
C    192.168.1.0/24 is directly connected, Ethernet0
C    192.168.2.0/24 is directly connected, Serial0
```

Step 11 Examine the routing protocol status

- After examining the routing tables, it is discovered that there is no route to the BHM Ethernet LAN. So use the `show ip protocols` command to view the routing protocol status. From the GAD router, type the following:

```
GAD#show ip protocols
```

- What networks is RIP routing? 192.168.1.0 192.168.2.0
- Are these the correct networks? Yes

```
GAD#show ip protocol
Routing Protocol is "rip"
  Sending updates every 30 seconds, next due in 16 seconds
  Invalid after 180 seconds, hold down 180, flushed after 240
  Outgoing update filter list for all interfaces is
  Incoming update filter list for all interfaces is
  Redistributing: rip
  Default version control: send version 2, receive version 2
    Interface          Send  Recv  Triggered RIP  Key-chain
  Ethernet0            2      2
  Serial0              2      2
  Automatic network summarization is in effect
  Routing for Networks:
    192.168.1.0
    192.168.2.0
  Routing Information Sources:
    Gateway         Distance      Last Update
  192.168.2.2             120          00:10:58
  Distance: (default is 120)
```

Step 12 Gather Facts to identify the exact problem

- Now that a routing issue has been confirmed, the exact source of the routing problem needs to be discovered so it can be corrected. To observe the routing exchange between the routers will use the `debug ip rip` command.
- From a GAD console, type the `debug ip packet` command and watch the output for a minute or two.
- Record a sample of output from GAD or BHM

```
BHM#debug ip rip
RIP protocol debugging is on
BHM#
*Mar  1 20:18:21.714: RIP: ignored v1 packet from 192.168.2.1 (illegal
version)
*Mar  1 20:18:23.074: RIP: sending v2 update to 224.0.0.9 via Serial0
(192.168.2.2)
*Mar  1 20:18:23.074: RIP: build update entries - suppressing null
update
*Mar  1 20:18:49.346: RIP: sending v2 update to 224.0.0.9 via Serial0
(192.168.2.2)
*Mar  1 20:18:49.346: RIP: build update entries - suppressing null
update
*Mar  1 20:18:51.210: RIP: ignored v1 packet from 192.168.2.1 (illegal
version)
```

```
BHM#debug ip packet
IP packet debugging is on
BHM#
*Mar  1 20:21:06.802: IP: s=192.168.17.1 (Serial0), d=224.0.0.10, len
60, unroutable
*Mar  1 20:21:11.474: IP: s=192.168.17.1 (Serial0), d=224.0.0.10, len
60, unroutable
*Mar  1 20:21:11.538: IP: s=192.168.17.1 (Serial0), d=255.255.255.255,
len 52, rcvd 2
*Mar  1 20:21:16.182: IP: s=192.168.17.1 (Serial0), d=224.0.0.10, len
60, unroutable
*Mar  1 20:21:20.982: IP: s=192.168.17.1 (Serial0), d=224.0.0.10, len
60, unroutable
```

*Mar 1 20:21:25.534: IP: s=192.168.17.1 (Serial0), d=224.0.0.10, len 60, unroutable

- d. Are there routing updates being passed? Yes
- e. What is happening to the routing updates from BHM?
They are being ignored because they are the wrong version.
- f. Type `undebug all` to stop the output.

Step 13 Consider the possibilities

- a. From the information discovered through the troubleshooting process, what are the possible problems?
The `debug ip rip` command shows that the routing updates are not displayed because the RIP versions are incompatible.

Step 14 Create an action plan

- a. How can the problem be corrected?
Change the version of RIP on router BHM to be compatible with that of GAD.

Step 15 Implement the action plan

- a. Try the solution that was proposed in the previous step.

Step 16 Observe the results

- a. Now it is necessary to confirm that the solution has solved the problem. This is done by reversing the tests that have been previously performed.
- b. Observe the routing exchange between the routers using the `debug ip rip` command and watch the output for a minute or two.

BHM#debug ip rip
RIP protocol debugging is on
BHM#
*Mar 1 20:27:10.918: RIP: received v1 update from 192.168.2.1 on Serial0
*Mar 1 20:27:10.918: 192.168.1.0 in 1 hops
*Mar 1 20:27:12.918: RIP: sending v1 flash update to 255.255.255.255 via Serial0 (192.168.17.2)
*Mar 1 20:27:12.918: RIP: build flash update entries - suppressing null update
*Mar 1 20:27:29.230: RIP: sending v1 update to 255.255.255.255 via Serial0 (192.168.2.2)
*Mar 1 20:27:29.230: RIP: build update entries - suppressing null update
*Mar 1 20:27:37.710: RIP: received v1 update from 192.168.2.1 on Serial0
*Mar 1 20:27:37.710: 192.168.1.0 in 1 hops

- c. Type `undebug all` to stop the output.
- d. Check the GAD routing table to see if there is a route to BHM using the `show ip route`.
- e. Are there any RIP routes? Yes
- f. Is the route to BHM there? Yes

GAD#show ip route

Codes: C - connected, S - static, I - IGRP, R - RIP, M - mobile, B - BGP

D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area

N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2

E1 - OSPF external type 1, E2 - OSPF external type 2, E - EGP

i - IS-IS, L1 - IS-IS level-1, L2 - IS-IS level-2, ia - IS-IS inter area

* - candidate default, U - per-user static route, o - ODR

P - periodic downloaded static route

Gateway of last resort is not set

C 192.168.1.0/24 is directly connected, Ethernet0

C 192.168.2.0/24 is directly connected, Serial0

R 192.168.3.0/24 [120/1] via 192.168.2.2, 00:00:01, Serial0

- g. Just to confirm everything is the working from the GAD router try to ping the LAN interface of the BHM router. Was it successful? Yes
- h. If this does not correct the problem, then repeat the process.
- i. If the tests were successful, document the changes and back up the configuration.

Upon completion of the previous steps, log off by typing **exit** and turn the router off.

Erasing and reloading the router

Enter into the privileged EXEC mode by typing **enable**.

If prompted for a password, enter **class**. If “class” does not work, ask the instructor for assistance.

```
Router>enable
```

At the privileged EXEC mode, enter the command **erase startup-config**.

```
Router#erase startup-config
```

The responding line prompt will be:

```
Erasing the nvram filesystem will remove all files! Continue?  
[confirm]
```

Press **Enter** to confirm.

The response should be:

```
Erase of nvram: complete
```

Now at the privileged EXEC mode, enter the command **reload**.

```
Router(config)#reloadRouter#reload
```

The responding line prompt will be:

```
System configuration has been modified. Save? [yes/no]:
```

Type **n** and then press **Enter**.

The responding line prompt will be:

```
Proceed with reload? [confirm]
```

Press **Enter** to confirm.

In the first line of the response will be:

```
Reload requested by console.
```

After the router has reloaded the line prompt will be:

```
Would you like to enter the initial configuration dialog? [yes/no]:
```

Type **n** and then press **Enter**.

The responding line prompt will be:

```
Press RETURN to get started!
```

Press **Enter**.

The router is ready for the assigned lab to be performed.

Router Interface Summary					
Router Model	Ethernet Interface #1	Ethernet Interface #2	Serial Interface #1	Serial Interface #2	Interface #5
800 (806)	Ethernet 0 (E0)	Ethernet 1 (E1)			
1600	Ethernet 0 (E0)	Ethernet 1 (E1)	Serial 0 (S0)	Serial 1 (S1)	
1700	FastEthernet 0 (FA0)	FastEthernet 1 (FA1)	Serial 0 (S0)	Serial 1 (S1)	
2500	Ethernet 0 (E0)	Ethernet 1 (E1)	Serial 0 (S0)	Serial 1 (S1)	
2600	FastEthernet 0/0 (FA0/0)	FastEthernet 0/1 (FA0/1)	Serial 0/0 (S0/0)	Serial 0/1 (S0/1)	
In order to find out exactly how the router is configured, look at the interfaces. This will identify the type of router as well as how many interfaces the router has. There is no way to effectively list all of the combinations of configurations for each router class. What is provided are the identifiers for the possible combinations of interfaces in the device. This interface chart does not include any other type of interface even though a specific router may contain one. An example of this might be an ISDN BRI interface. The string in parenthesis is the legal abbreviation that can be used in IOS command to represent the interface.					

GAD#show running-config
Building configuration...

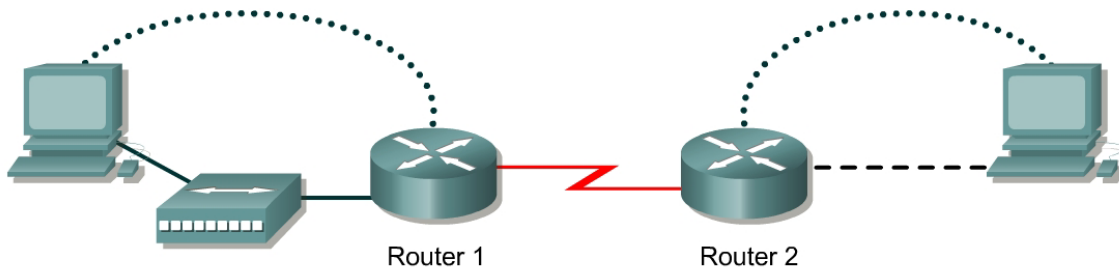
Current configuration:

!
version 12.0
no service password-encryption
!
hostname GAD
!
enable secret 5 \$1\$O3uG\$CI4acFapdY8A8CylvUpKq.
!
ip subnet-zero
!
interface Ethernet0
ip address 192.168.1.1 255.255.255.0
no ip directed-broadcast
!
interface Serial0
ip address 192.168.2.1 255.255.255.0
no ip directed-broadcast
no ip mroute-cache
no fair-queue
clock rate 64000
!
interface Serial1
no ip address
no ip directed-broadcast
shutdown
!
router rip
version 1
network 192.168.1.0
network 192.168.2.0
!
ip classless
!
line con 0
transport input none
line aux 0
line vty 0 4
password cisco
login
!
end

```
BHM#show running-config
Building configuration...

Current configuration:
!
version 12.0
no service password-encryption
!
hostname BHM
!
enable secret 5 $1$iQzD$hHdQsscpbSdVj63u69JlX1
!
ip subnet-zero
!
interface Ethernet0
ip address 192.168.3.1 255.255.255.0
no ip directed-broadcast
!
interface Serial0
ip address 192.168.2.2 255.255.255.0
no ip directed-broadcast
no ip mroute-cache
no fair-queue
!
interface Serial1
no ip address
no ip directed-broadcast
shutdown
!
router rip
version 1
network 192.168.2.0
network 192.168.3.0
!
ip classless
!
line con 0
transport input none
line aux 0
line vty 0 4
password cisco
login
!
end
```

Lab 9.3.7 Troubleshooting Routing Issues with debug – Instructor Version 2600



Router Designation	Router Name	Fast Ethernet 0 Address	Interface type	Serial 0 Address	Subnet mask for both interfaces	Enable secret password	Enable, VTY and console password
Router 1	GAD	192.168.1.1	DCE	192.168.2.1	255.255.255.0	class	cisco
Router 2	BHM	192.168.3.1	DTE	192.168.2.2	255.255.255.0	class	cisco

Straight-through cable	—————
Serial cable	————— ⚡
Console (Rollover)
Crossover cable	- - - - -

Objective

- Utilize a systematic OSI troubleshooting process to diagnose routing problems.
- Use various show commands to gather information.
- Use `debug` commands and logging.

Background/Preparation

Cable a network similar to the one in the diagram. Any router that meets the interface requirements displayed on the above diagram, such as 800, 1600, 1700, 2500, 2600 routers, or a combination, may be used. Please refer to the chart at the end of the lab to correctly identify the interface identifiers to be used based on the equipment in the lab. The configuration output used in this lab is produced from 1721 series routers. Any other router used may produce a slightly different output. The following steps are intended to be executed on each router unless specifically instructed otherwise.

Start a HyperTerminal session as performed in the Establishing a HyperTerminal session lab.

Note: Go to the erase and reload instructions at the end of this lab. Perform those steps on all routers in this lab assignment before continuing.

Step 1 Configure the hostname, passwords and interfaces on the GAD router

- a. On the GAD router, enter the global configuration mode and configure the hostname as shown in the chart. Then configure the console, virtual terminal, and enable passwords. If there is a problem doing this, refer to the Configuring Router Passwords lab. Configure interfaces as shown in the table.

Step 2 Configure the routing protocol on the GAD router

- a. Go to the proper command mode and enter the following:

```
GAD(config)#router rip
GAD(config-router)#network 192.168.1.0
GAD(config-router)#network 192.168.2.0
GAD(config-router)#version 2
GAD(config-router)#exit
GAD(config)#exit
```

Step 3 Save the GAD router configuration

```
GAD#copy running-config startup-config
Destination filename [startup-config]? [Enter]
```

Step 4 Configure the hostname, passwords and interfaces on the BHM router

- a. On the BHM router, enter the global configuration mode and configure the hostname as shown in the chart. Then configure the console, virtual terminal and enable passwords. Configure interfaces as shown in the table.

Step 5 Configure the routing protocol on the BHM router

- a. Go to the proper command mode and enter the following:

```
BHM(config)#router rip
BHM(config-router)#network 192.168.2.0
BHM(config-router)#network 192.168.3.0
BHM(config-router)#version 1
BHM(config-router)#exit
BHM(config)#exit
```

Step 6 Save the BHM router configuration

```
BHM#copy running-config startup-config
Destination filename [startup-config]? [Enter]
```

Step 7 Gather Facts by asking and listening

- a. After asking around, it was found that a network associate on the night shift changed some of the routing parameters on the routers for a circuit between the GAD office and the BHM office. Unfortunately, proper procedure was not followed and no documentation was created on these changes.

Step 8 Gather facts (test basic functionality)

Verify that the internetwork is not functioning by pinging the LAN interfaces.

- From GAD, is it possible to ping the BHM router FastEthernet interface? No
- From BHM, is it possible to ping the GAD router FastEthernet interface? No

Step 9 Gather Facts by starting testing to isolate the problem

- This confirmed that there is no reachability between GAD and BHM. Even though it is suspected that there is a routing issue, the temptation to go right to testing routing is resisted. Instead good scientific troubleshooting method is followed.
- First start at the Physical layer, and confirm the WAN link circuit is up. From the GAD router, issue the `show interfaces serial 0` command to confirm that the line and protocol is up.

- Are they both up? Yes

```
GAD#show interfaces serial 0/0
Serial0/0 is up, line protocol is up
<output omitted>
```

- Now that it is known that the line and protocol are both up, test the Data Link layer. From the GAD router, issue the `show CDP neighbors` command to confirm that the BHM router is a neighbor to the GAD router serial 0 interface.

- Is BHM shown as a neighbor on interface serial 0? Yes

```
GAD#show cdp neighbors
Capability Codes: R - Router, T - Trans Bridge, B - Source Route Bridge
                  S - Switch, H - Host, I - IGMP, r - Repeater
```

Device ID	Local Intrfce	Holdtme	Capability	Platform	Port ID
BHM	Ser 0/0	151	R	2600	Ser 0/0

Step 10 Examine the routing table

- It looks like the data link layer is good. Time to move up and examine the network layer. Check the GAD routing table to see if there is a route to the BHM LAN. To do this, issue the `show ip route` command on the GAD router.

- Is the route there? No

- Are there any RIP routes? No

```
GAD#show ip route
<output omitted>
```

```
Gateway of last resort is not set
```

```
C    192.168.1.0/24 is directly connected, FastEthernet0/0
C    192.168.2.0/24 is directly connected, Serial0/0
```

Step 11 Examine the routing protocol status

- After examining the routing tables, it is discovered that there is no route to the BHM Ethernet LAN. So use the `show ip protocols` command to view the routing protocol status. From the GAD router, type the following:

```
GAD#show ip protocols
```

- What networks is RIP routing? 192.168.1.0 192.168.2.0
- Are these the correct networks? Yes

```
GAD#show ip protocol
Routing Protocol is "rip"
  Sending updates every 30 seconds, next due in 16 seconds
  Invalid after 180 seconds, hold down 180, flushed after 240
  Outgoing update filter list for all interfaces is
  Incoming update filter list for all interfaces is
  Redistributing: rip
  Default version control: send version 2, receive version 2
    Interface          Send  Recv  Triggered RIP  Key-chain
  FastEthernet0/0      2      2
  Serial0/0            2      2
  Automatic network summarization is in effect
  Routing for Networks:
    192.168.1.0
    192.168.2.0
  Routing Information Sources:
    Gateway         Distance      Last Update
  192.168.2.2        120           00:10:58
  Distance: (default is 120)
```

Step 12 Gather Facts to identify the exact problem

- Now that a routing issue has been confirmed, the exact source of the routing problem needs to be discovered so it can be corrected. To observe the routing exchange between the routers will use the `debug ip rip` command.
- From a GAD console, type the `debug ip packet` command and watch the output for a minute or two.
- Record a sample of output from GAD or BHM

```
BHM#debug ip rip
RIP protocol debugging is on
BHM#
*Mar  1 20:18:21.714: RIP: ignored v1 packet from 192.168.2.1 (illegal
version)
*Mar  1 20:18:23.074: RIP: sending v2 update to 224.0.0.9 via Serial0/0
(192.168.2.2)
*Mar  1 20:18:23.074: RIP: build update entries - suppressing null
update
*Mar  1 20:18:49.346: RIP: sending v2 update to 224.0.0.9 via Serial0/0
(192.168.2.2)
*Mar  1 20:18:49.346: RIP: build update entries - suppressing null
update
*Mar  1 20:18:51.210: RIP: ignored v1 packet from 192.168.2.1 (illegal
version)
```

```
BHM#debug ip packet
IP packet debugging is on
BHM#
*Mar  1 20:21:06.802: IP: s=192.168.17.1 (Serial0/0), d=224.0.0.10, len
60, unroutable
*Mar  1 20:21:11.474: IP: s=192.168.17.1 (Serial0/0), d=224.0.0.10, len
60, unroutable
*Mar  1 20:21:11.538: IP: s=192.168.17.1 (Serial0/0),
d=255.255.255.255, len 52, rcvd 2
*Mar  1 20:21:16.182: IP: s=192.168.17.1 (Serial0/0), d=224.0.0.10, len
60, unroutable
*Mar  1 20:21:20.982: IP: s=192.168.17.1 (Serial0/0), d=224.0.0.10, len
60, unroutable
```

*Mar 1 20:21:25.534: IP: s=192.168.17.1 (Serial0/0), d=224.0.0.10, len 60, unroutable

- d. Are there routing updates being passed? Yes
- e. What is happening to the routing updates from BHM? They are being ignored because they are the wrong version.
- f. Type `undebug all` to stop the output.

Step 13 Consider the possibilities

- a. From the information discovered through the troubleshooting process, what are the possible problems? The debug ip rip shows that the routing updates are not being entered into the routing table. The RIP versions are incompatible.

Step 14 Create an action plan

- a. How can the problem be corrected?
Change the version of RIP on router BHM to be compatible with that of GAD.

Step 15 Implement the action plan

- a. Try the solution that was proposed in the previous step.

Step 16 Observe the results

- a. Now it is necessary to confirm that the solution has solved the problem. This is done by reversing the tests that have been previously performed.
- b. Observe the routing exchange between the routers using the `debug ip rip` command and watch the output for a minute or two.

BHM#debug ip rip
RIP protocol debugging is on
BHM#
*Mar 1 20:27:10.918: RIP: received v1 update from 192.168.2.1 on Serial0/0
*Mar 1 20:27:10.918: 192.168.1.0 in 1 hops
*Mar 1 20:27:12.918: RIP: sending v1 flash update to 255.255.255.255 via Serial0/0 (192.168.17.2)
*Mar 1 20:27:12.918: RIP: build flash update entries - suppressing null update
*Mar 1 20:27:29.230: RIP: sending v1 update to 255.255.255.255 via Serial0/0 (192.168.2.2)
*Mar 1 20:27:29.230: RIP: build update entries - suppressing null update
*Mar 1 20:27:37.710: RIP: received v1 update from 192.168.2.1 on Serial0/0
*Mar 1 20:27:37.710: 192.168.1.0 in 1 hops

- c. Type `undebug all` to stop the output.
- d. Check the GAD routing table to see if there is a route to BHM using the `show ip route`.
- e. Are there any RIP routes? Yes
- f. Is the route to BHM there? Yes

GAD#show ip route

Codes: C - connected, S - static, I - IGRP, R - RIP, M - mobile, B - BGP

D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area

N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2

E1 - OSPF external type 1, E2 - OSPF external type 2, E - EGP

i - IS-IS, L1 - IS-IS level-1, L2 - IS-IS level-2, ia - IS-IS inter area

* - candidate default, U - per-user static route, o - ODR

P - periodic downloaded static route

Gateway of last resort is not set

C 192.168.1.0/24 is directly connected, FastEthernet0/0

C 192.168.2.0/24 is directly connected, Serial0/0

R 192.168.3.0/24 [120/1] via 192.168.2.2, 00:00:01, Serial0/0

- g. Just to confirm everything is the working from the GAD router try to ping the LAN interface of the BHM router. Was it successful? Yes
- h. If this does not correct the problem, then repeat the process.
- i. If the tests were successful, document the changes and back up the configuration.

Upon completion of the previous steps, log off by typing **exit** and turn the router off.

Erasing and reloading the router

Enter into the privileged EXEC mode by typing **enable**.

If prompted for a password, enter **class**. If “class” does not work, ask the instructor for assistance.

```
Router>enable
```

At the privileged EXEC mode, enter the command **erase startup-config**.

```
Router#erase startup-config
```

The responding line prompt will be:

```
Erasing the nvram filesystem will remove all files! Continue?  
[confirm]
```

Press **Enter** to confirm.

The response should be:

```
Erase of nvram: complete
```

Now at the privileged EXEC mode, enter the command **reload**.

```
Router(config)#reloadRouter#reload
```

The responding line prompt will be:

```
System configuration has been modified. Save? [yes/no]:
```

Type **n** and then press **Enter**.

The responding line prompt will be:

```
Proceed with reload? [confirm]
```

Press **Enter** to confirm.

In the first line of the response will be:

```
Reload requested by console.
```

After the router has reloaded the line prompt will be:

```
Would you like to enter the initial configuration dialog? [yes/no]:
```

Type **n** and then press **Enter**.

The responding line prompt will be:

```
Press RETURN to get started!
```

Press **Enter**.

The router is ready for the assigned lab to be performed.

Router Interface Summary					
Router Model	Ethernet Interface #1	Ethernet Interface #2	Serial Interface #1	Serial Interface #2	Interface #5
800 (806)	Ethernet 0 (E0)	Ethernet 1 (E1)			
1600	Ethernet 0 (E0)	Ethernet 1 (E1)	Serial 0 (S0)	Serial 1 (S1)	
1700	FastEthernet 0 (FA0)	FastEthernet 1 (FA1)	Serial 0 (S0)	Serial 1 (S1)	
2500	Ethernet 0 (E0)	Ethernet 1 (E1)	Serial 0 (S0)	Serial 1 (S1)	
2600	FastEthernet 0/0 (FA0/0)	FastEthernet 0/1 (FA0/1)	Serial 0/0 (S0/0)	Serial 0/1 (S0/1)	
In order to find out exactly how the router is configured, look at the interfaces. This will identify the type of router as well as how many interfaces the router has. There is no way to effectively list all of the combinations of configurations for each router class. What is provided are the identifiers for the possible combinations of interfaces in the device. This interface chart does not include any other type of interface even though a specific router may contain one. An example of this might be an ISDN BRI interface. The string in parenthesis is the legal abbreviation that can be used in IOS command to represent the interface.					

GAD#show running-config
Building configuration...

Current configuration:

!
version 12.0
no service password-encryption
!
hostname GAD
!
enable secret 5 \$1\$O3uG\$CI4acFapdY8A8CylvUpKq.
!
ip subnet-zero
!
interface FastEthernet0/0
ip address 192.168.1.1 255.255.255.0
no ip directed-broadcast
!
interface Serial0/0
ip address 192.168.2.1 255.255.255.0
no ip directed-broadcast
no ip mroute-cache
no fair-queue
clock rate 64000
!
interface Serial0/1
no ip address
no ip directed-broadcast
shutdown
!
router rip
version 1
network 192.168.1.0
network 192.168.2.0
!
ip classless
!
line con 0
transport input none
line aux 0
line vty 0 4
password cisco
login
!
end

```
BHM#show running-config
Building configuration...

Current configuration:
!
version 12.0
no service password-encryption
!
hostname BHM
!
enable secret 5 $1$iQzD$hHdQsscpbSdVj63u69JlX1
!
ip subnet-zero
!
interface FastEthernet0/0
 ip address 192.168.3.1 255.255.255.0
 no ip directed-broadcast
!
interface Serial0/0
 ip address 192.168.2.2 255.255.255.0
 no ip directed-broadcast
 no ip mroute-cache
 no fair-queue
!
interface Serial0/1
 no ip address
 no ip directed-broadcast
 shutdown
!
router rip
 version 1
 network 192.168.2.0
 network 192.168.3.0
!
ip classless
!
line con 0
 transport input none
line aux 0
line vty 0 4
 password cisco
 login
!
end
```